AECOM

Dow – Philadelphia Plant Air Sampling – August 2017

Data Validation Summary Report

During this sampling event, a total of three (3) field samples were collected between August 16 and August 17, 2017. The samples were submitted to Eurofins Lancaster Laboratories (PA certification # 36-00037) located in Lancaster, Pennsylvania in the following sample delivery group (SDG):

DAP02-01

The following table, Table 1, identifies the samples that were reviewed and validated during this sampling event.

TABLE 1

SDG	Lab Sample ID	Client Project Sample ID	Sample Date	Analysis Request
				VOCs
DAP02-01	9165028	IA-2-081717	08/17/2017 11:16	X
	9165029	IA-1-081717	08/17/2017 09:45	X
	9165030	AMB-1-081717	08/17/2017 09:42	X

The following methods were employed during this sampling event:

Full list volatile organic compounds (VOCs) by USEPA Compendium of Methods for the Determination of Toxic Organic (TO) Compounds in Ambient Air by method TO-15 (January 1999, second edition).

Data have been independently validated using the following guidance:

USEPA Region 2, Hazardous Waste Support Branch, Standard Operating Procedure (SOP) No. HW-31, revision 6, Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15 (September 2016).

There is no guidance from National Functional Guidelines or USEPA Region 3 for validating air samples. However, USEPA Region 2 does have guidelines, which were used in validating the air data.

Qualifiers consistent with USEPA Region 2 SOP HW-31 were used. Reason codes, additional qualifiers to assist the data reviewer and data user in determining the rationale for the

qualification, were added. The list of qualifiers and reason codes were appended to the final report.

The level of review incorporated in this process is described as an "ORGANIC LEVEL 2", which was previously defined as "Level III", by the current version of the QAPP (Act 2 Remedial Investigation West Production Area, November, 2008).

An "ORANIC LEVEL 2" validation includes reconstruction of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Material evaluated during the data quality review included the following:

1. Sample Receipt/Transcription error check
2. Sample preservation
3. Sample holding times
4. Tune Summary
5. Initial calibration
6. Continuing calibration verification (CCV)
7. Laboratory blank contamination
8. Internal Standard recoveries
9. Laboratory control samples (LCSs)/LCS Duplicate (LCSD) Recoveries, Relative Percent Difference (RPD) Values
10. Field duplicate results
11. Analytical Assessment
12. Overall assessment of the data

1. SAMPLE RECEIPT/TRANSCRIPTION ERROR CHECK

Sample identifications, sample dates, and sample times on the chain of custody (COC) matched those found in the laboratory data package.

- In SDG DAP02-01, the field technician crossed out "AMB" on the first line of the COC and "IA-2" on the third line of the COC. These were not used when filling out the sample identifications. Also, there are flow regulator IDs listed on the fourth and fifth line of the COC; however, the field technician wrote "Not Sampled" for those two rows.

The chain of custody was signed and dated, and proper chain of command was followed from field to laboratory.

All canister pressures from start of sampling through ending of sampling were within specified requirements.

2. SAMPLE PRESERVATION

The following table (Table 2) summarizes laboratory receipt times and canister temperatures:

Table 2 – Sample Preservation

SDG	Laboratory Receipt Date/Time	Canister Temperatures
DAP02-01	08/18/2017 17:30	Room temperature

3. SAMPLE HOLDING TIMES

Sample holding time requirements for air matrix samples are those presented in the "Guidelines" and/or corresponding analytical methods.

The following table (Table 3) summarizes method holding times:

Table 3 – Sample Holding Times

Analysis	Maximum Allowance between Collection and Extraction (in days)	Maximum Allowance between Extraction and Analysis (in days)	Maximum Allowance between Collection and Analysis (in days)
VOC	None	None	30

Sample holding times were met for all samples.

4. TUNE SUMMARY

GC/MS instrument performance checks (tune summaries) are performed to ensure adequate mass resolution, identification, and to some degree, sensitivity. Tune summaries are analyzed at the beginning of each 24 hr shift for VOCs.

Tune summary issues were not detected during data validation.

5. INITIAL CALIBRATION

The initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an analytical sequence and of producing a calibration curve with an acceptable level of linearity. Separate calibrations are performed for both the single-component and multi-component target compounds. Relative response factors (RRFs) and percent relative standard deviations (%RSDs) from the initial calibration for VOCs must meet the criteria listed in Table 5 of USEPA Region 2 SOP HW-31.
Initial calibration %RSDs and RRFs were within control limits.

6. CONTINUING CALIBRATION VERIFICATION (CCV)

Continuing calibration verifications are evaluated to determine whether the instrument was within acceptable calibration throughout the period in which samples were analyzed (i.e., verify that the initial calibration was applicable during the sample analyses). The percent deviation (%D) between the initial calibration and the continuing calibration for VOCs must meet the criteria listed in Table 6 of USEPA Region 2 SOP HW-31.

Continuing calibration %Ds were within control limits.

7. LABORATORY BLANK CONTAMINATION

Laboratory method blanks evaluate the existence and magnitude of cross-contamination resulting from laboratory procedures.

All laboratory method blanks were analyzed at the method prescribed frequencies.

Laboratory method blank contamination was not detected during data validation.

8. INTERNAL STANDARD RECOVERIES

Internal standard (IS) performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. IS area counts must not vary by more than a factor of two (-40% to +40%) from the associated 24hr calibration standard.

Internal standard recoveries were within control limits.

9. LABORATORY CONTROL SAMPLES (LCS)/LCS DUPLICATE (LCSD) RECOVERIES, RELATIVE PERCENT DIFFERENCE (RPD) VALUES

Data for laboratory control samples are generated to provide information on the accuracy of the analytical method and laboratory performance.

The following table (Table 4) summarizes LCS/LCSD anomalies and RPD values:

Table 4 – LCS/LCSD Recoveries, RPD Values

SDG	Batch ID	Analyte (%Recovery)	Samples Affected	Qualification Summary
DAP02-01	LCSD E1723330AA	Hexachloroethane (139%)	--	None[1]
		Methylene chloride (132%)	--	None[1]

[1] - Since the LCS and the RPD values for both compounds were within control limits, data were not qualified.

10. FIELD DUPLICATE RESULTS

Field duplicate results were used to evaluate field sampling precision. For air matrix samples, when results for both duplicate and parent-sample values are greater the five times the quantitation limits, satisfactory precision is indicated by a RPD less than or equal to 50%. Where one or both results of a field duplicate pair are reported at less than five times the quantitation limits, satisfactory precision is achieved if the field duplicate results agree within two (2) times the quantitation limit. Field duplicate results that do not meet these criteria may indicate potential poor field sampling techniques.

Field duplicates were not collected during this sampling event.

11. ANALYTICAL ASSESSMENT

All samples were analyzed at 1x dilution factors.

12. OVERALL ASSESSMENT OF THE DATA

Based on the criteria outlined above, it is recommended that the results reported for these analyses can be accepted for their intended use, as qualified.

Completeness, defined to be the percentage of analytical results that are judged to be valid, was 100%.

Signed:

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